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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/779,702	02/18/2004	Robert Colin Pugh	P66775US1	8963

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EXAMINER	
MITCHELL, KATHERINE W	
ART UNIT	**PAPER NUMBER**
3677	

DATE MAILED: 10/21/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/779,702	PUGH ET AL.	
	Examiner	Art Unit	
	Katherine W. Mitchell	3677	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *18 February 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *20-36* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *20-36* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *18 February 2004* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☒ Certified copies of the priority documents have been received in Application No. 09/868,623.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *2/18/2004*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

1. Examiner has not restricted between apparatus and method of use claims since the method claims depend on the apparatus claims, and include only broad method steps. However, should the methods be amended to include detailed method steps, the claims will be restricted. US restriction practices, not PCT lack of unity practices, apply as this is a divisional of a national stage application, not itself a national stage application.

Information Disclosure Statement

2. The information disclosure statement filed 2/18/2004 states that a copy of each foreign patent was provided. However, examiner cannot find them in the scanned application.

Drawings

3. It appears that Figure 12-14 and 18 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> (a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 20-26,28-33,35-36 are rejected under 35 U.S.C. 102(a) as being anticipated by Sandanasamy, EO 0870875, hereafter called EP875.

Re 20: EP875 teaches an EKG drain structure (abstract, Fig 3) comprising at least one core element (2) enclosed in a sheath (3) wherein said at least one core comprises channels (5) and the sheath is "associated with" at least one conducting element (4), per below from col 3:

> Referring to Figure 3, a vertical drain 1 embodying the present invention comprising a corrugated plastics core 2 which is surrounded by a synthetic filter cloth 3. In the example shown in Figure 3, the vertical drain has a thickness in the region of 3 mm, a nominal width of 100 mm and a length in the region of 50m or more. The drain is manufactured in coiled lengths of 200 m or more. Preferably, the plastics materials from which the plastics core is manufactured is polypropylene or polyethylene or other extrudable plastics. The synthetics filter cloth is preferably manufactured from polypropylene or polyethylene or other synthetic fibres and is sufficiently porous to allow water to permeate through the filter cloth into the corrugations 5 of the plastics core. Preferably, the average pore size of the synthetic filter cloth is in the region of 75 to 200 microns.
>
> The corrugations 5 in the plastics core define a series of channels extending along the vertical drain, which channels are open to the synthetic filter cloth surrounding the core such that water permeating through the filter cloth is received in the one or more channels.

Re claim 29-30 and 36: The method is taught per col 3-4 below:

In use, vertical drains embodying the present invention are inserted in a square grid of bores in the area of ground to be consolidated. The grid of the drains defines an array of rows and columns of drains which are spaced apart by between 1.0 m to 1.5 m. This arrangement is shown schematically in Figures 4 and 5. A DC power source such as high capacity wet cells, an on-site generator or a connection to a grid supply is connected to the vertical drains by means of connector terminals which are exposed above the surface of the ground to be consolidated. In the array of vertical drains, alternate rows of vertical drains are connected to either a negative or positive terminal of the power supply such that a first row of vertical drains comprises a row of anodes, a second row of vertical drains comprises a row of cathodes and so on.

A surcharge load is placed over the area of ground to be consolidated. The provision of the surcharge load begins a process of hydraulic consolidation of the ground beneath the surcharge load. As the ground consolidates, the water content of the ground reduces as water passes through the synthetic filter cloths 3 of the vertical drains 1 into the corrugations 5 of the plastics core 2 and up and out of the vertical drains 1. As previously discussed, after about 60% consolidation has taken place, the rate of hydraulic consolidation begins to slow considerably. However, using the vertical drains embodying the present invention, the rate of consolidation can be re-accelerated by implementing an electro-osmotic consolidation of the ground through which the vertical drains 1 pass. The DC supply to the array of vertical drains 1 is switched on thereby beginning the electro-osmotic consolidation process. The electro-osmotic consolidation process results in water being attracted to the cathode vertical drains 1.

It should be appreciated that whilst the electro-osmotic consolidation is taking place, there is still a certain amount of hydraulic consolidation taking place. Since the construction of the vertical drains 1 for use as both cathodes and anodes is identical, the hydraulic consolidation will still cause a certain amount of water to be present in the anode vertical drains. The water present in the anode vertical drains is being attracted to the cathode vertical drains through the ground being consolidated. Thus, a certain amount of electrical energy could be considered to be being wasted. Therefore, in one consolidation system embodying the present invention, the cathode vertical drains are produced as previously described whereas the anodes in the array of vertical drains comprise solid cores without corrugations to prevent water being collected in the anodes.

Two electrodes are taught, per above, and the method of inserting the second electrode is not germaine in an apparatus claim. The method of forming the device is not germane to the issue of patentability of the device itself. Therefore, this limitation has not been given patentable weight.

Re 21: Absent any definition to the contrary, plastic used in the soil is considered a geosynthetic, since plastic is by definition a synthetic material.

Core (2) is plastic, and thus geosynthetic, and it is described as having (enclosing) void channels (5).

Re 22: The sheath is shown as an essentially closed structure containing core element in Fig 3.

Re 23: The at least one core element is in direct contact with the sheath, over substantially all its outer surface per Fig 3.

Re 24; The sheath is described as a filter, thus inherently porous, as also decribed in col 3 above:

fil·ter (fĭl′tər) *noun*
1. a. A porous material through which a liquid or gas is passed in order to separate the fluid from suspended particulate matter. b. A device containing such a substance.[1]

Re 25-26 and 32-33: The conducting element is described as a copper wire (filament) , per col 3:

> ufactured by extrusion. Either after extrusion or during the extrusion process, one or more electrically conductive ships 4 such as, for example, copper wire are attached or embedded along the length of the plastics core 2. The electrically conductive ships 4 run continuously from one end of the vertical drain along the length of the plastics core 2 to the other end of the vertical drain.

It is "in close association" with the sheath. In this case, the metal is dispersed in similar metal carrier. However, a conducting non-metallic (conducting polymer) is also taught in col 3:

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> A vertical drain embodying the present invention may dispense with the electrically conductive strips 4 by utilising a plastics core 2 manufactured from an electrically conductive resin. Either all the plastics core 2 or selected areas of the plastics core are manufactured from the electrically conductive resin. Examples of appropriate electrically conductive resins are polypropylene and polyethylene base resins which are compounded with carbon to produce electrically conductive polypropylene and electrically conductive polyethylene. Such resins are readily available in extrusion grade.

Re claim 28 and 35: It has been held that the recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus satisfying the claimed structural limitations. *Ex parte Masham*, 2 USPQ2d 1647 (1987).

Further re 35 : A method claim is not properly described as « the use of.. », and method claims should include method steps. However, since the claim is an apparatus claim (depends on claim 35), the intended use is not germaine.

Re claim 31: the sheath "surrounds the core" and thus is in the form of a container or bag.

6. Claims 20-36 are rejected under 35 U.S.C. 102(b) as being anticipated by Jones et al., PCT WO95/21965, published 8/17/1995, the national stage entry of which is cited as USP 5980155.

Jones teaches an EKG drain structure comprising a composite geosynthetic liner with enclosed core element surrounded by a sheath, and a conducting element associated with the sheath, including that the EKG drain structure comprises a sheath with conducting elements dispersed throughout

such that the sheath forms the conducting element, in the abstract and Figures, and col 5 line 60 - col 7 line 30 (US), pg 10 line 20-page 14, line 15 (PCT). The sheath is porous, the conductive element is taught as metallic polypropylene (col 21, lines 1-3 US, pg 46, lines 8-9 PCT). The mesh inherently forms drainage channels, (see broad definition below), per col 3 US and page 5, lines 5-15, PCT:

Drainage is also an important consideration in a reinforced soil structure. If such a structure becomes waterlogged the properties of the fill are changed and the tensile forces in the reinforcing elements increase. It is know that geosynthetics can be used for the purpose of drainage. Indeed, geosynthetics can serve two important hydraulic functions relating to cross-plane flow (filtration) and in-plane flow (in plane drainage). Less information is available about the properties of in-plane drainage than filtration. A drainage geosynthetic has voids (pores) and particles (filaments and fibres). Typically, the pore size bears a simple relationship to the particle size of the soil with which the geosynthetic is to be used.

chan·nel

chan·nel (chăn′əl) *noun*

4. A trench, furrow, or groove.
5. A tubular passage for liquids; a conduit.
6. A course or passage through which something may move or be directed: [2]

At least 2 electrodes are taught, with at least one as an EKG structure and with an electric field therebetween, per the examples and col 22 lines 4-16 US and page 11 and 23-24, PCT.

7. Claims 20-36 are rejected under 35 U.S.C. 102(a) as being anticipated by Wrigley PCT WO98/59117.

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Wrigley teaches an EKG drain structure (1) comprising a composite geosynthetic liner with enclosed core element (2,3,4) surrounded by a sheath (6), and a conducting element (5) associated with the sheath, including that the EKG drain structure comprises a sheath with conducting elements dispersed throughout such that the sheath forms the conducting element, in the abstract and Figures,. The sheath is porous, the conductive element is taught as part of the plastic, or a metallic wire at the last para of page 3 and last para of page 4 and top para page 8. The mesh inherently forms drainage channels, (see broad definition below), per "filter fabric":

chan·nel
chan·nel (chăn′əl) *noun*
4. A trench, furrow, or groove.
5. A tubular passage for liquids; a conduit.
6. A course or passage through which something may move or be directed: [3]

At least 2 electrodes are taught, with at least one as an EKG structure and with an electric field therebetween, per the examples, including Figure 4 and "THE INVENTION" of page 2.

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which

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said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

9. Claims 27 and 34 are rejected under 35 U.S.C. 103(a) as being unpatentable over EP875 in view of Jones et al., PCT WO95/21965. EP875 teaches all the elements except that the sheath has conducting material dispersed throughout the sheath, thus itself forming the conductive element. Jones teaches an EKG drain structure comprising a sheath with conducting elements dispersed throughout such that the sheath forms the conducting element in the abstract, Figs 4a-14, and col 5 line 60 - col 7 line 30 (US), pg 10 line 20-page 14, line 15 (PCT). Therefore, it would have been obvious to one of ordinary skill in the art, having the teachings of EP875 and Jones before him at the time the invention was made, to modify EP875 as taught by Jones to include a sheath with conducting elements dispersed throughout such that the sheath forms the conducting element, in order to obtain improved drainage, contaminant reduction, and improved shear strength of the adjacent soil and better adhesion between soil and geosynthetic (Jones et al col 4 lines 15-59 US and page 7 lines 7-15, PCT).

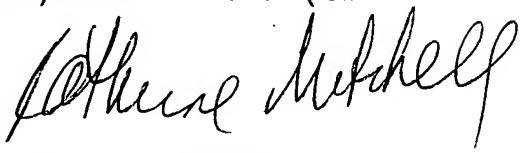
Conclusion

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Katherine W. Mitchell whose telephone number is 571-272-7069. The examiner can normally be reached on Mon - Thurs 10 AM - 8 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, J. J. Swann can be reached on 571-272-7075. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

12. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Katherine W Mitchell
Primary Examiner
Art Unit 3677

Kwm
10/7/2005